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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/656,582	09/06/2000	Gordon Taylor Davis	RAL9-2000-0080-US1	9845

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EXAMINER

HOANG, PHUONG N

ART UNIT	PAPER NUMBER
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2126

DATE MAILED: 06/18/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/656,582

Applicant(s)

DAVIS ET AL.

Examiner

Phuong N. Hoang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 September 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 44 of fig 1, 80, 82, 84, 86, 88, 90, 92, 96, 98, 100, 102 of fig 3, 450 of fig. 4, 509, 510, 511, 521, of fig. 5. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 - 3, 6 – 16, 18 – 20, 23 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung, US patent no. 5,404,469.

As to claim 9, Chung teaches a network processing system including an embedded processor complex for controlling the programmability of a network processor, the complex including a plurality of protocol processor units (PPU), each PPU containing:

at least one core language processor (processor 10, col. 2 lines, 30 – 50),

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each CLP having at least two threads (threads, col. 2 lines 30 – 32),
a plurality of coprocessors (plurality of function units, col. 2 lines 30 - 50) for
executing specific tasks for the system.

Chung does not teach multiple coprocessor interfaces to access and share the
resources of the coprocessors with each CLP.

It would have been obvious for one skilled in the art by the time of the invention to
recognize that there must have interfaces between core processor and coprocessors for
communication.

As to claim 10, Solomon as modified by Chung teaches coprocessor interfaces
are dedicated to support the code threads (threads can run between core processor and
coprocessors through interface).

As to claim 11, Chung teaches checksum coprocessor (integer unit, col. 2 lines
30 – 45), datastore coprocessor (load/store unit). Stringcopy coprocessor, counter
processor are generic coprocessors executing specific tasks.

As to claim 12, 13, 14, Chung teaches the network processing system of
claim 10 further including a FIFO buffer (each buffer contains two horizontal instruction
words and each horizontal instruction word contains a section corresponding to each
function unit, col. 4 lines 5 - 10) between each thread and at least one of the
coprocessors.

As to claim 15, 16, Chung teaches the network processing system
including specific operating instructions (instructions shown in the instruction buffers
are scheduled by the compiler statically....selecting threads, col. 4 lines 11 – 20)

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executed by the threads of the CLPs which result in commands to control coprocessor operation, which commands flow through the interface between the CLPs and the coprocessors.

As to claim 1 and 18, see claim 9 above.

As to claim 2 and 19, see claim 10 above.

As to claim 3 and 20, see claim 11 above.

As to claim 6 – 8, 23 - 25, see claim 12 – 14 above.

As to claim 26, 27, see claim 15, 16 above.

As to claim 28, Chung teaches the method according to claim 27 wherein the execution is either direct or indirect (the instructions issued to the function unit in the third clock cycle. By the end of the third clock cycle, all the instructions from the three threads are issued, col. 4 lines 10 – 60).

Claims 4, 5, 17, 21, 22, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung US patent no, in view of Bitar, US patent no. 5,928,322.

As to claim 17 and 29, Chung does not teach latency events.

Bitar teaches the network processing system according to claim 15 wherein the instructions enable the system to identify long latency events (latency, col. 4 lines 55 – 67) and short latency events (low-latency, col. 3 lines 59 – 60) according to the expected response time to access data in response to a particular coprocessor command, and to grant full control to another thread when execution of an active thread

stalls due to a long latency event, or to grant temporary control to another thread when execution of an active thread stalls due to a short latency event.

It would have been obvious to apply the teaching of Bitar to Chung's system because latency events used to control timing for executing threads.

As to claim 4, 5, 21, 22, Bitar teaches in the operation according to claim 3 further including a coprocessor execution interface arbiter to determine the priority between multiple data threads (changes to the priority of one or more real-time threads is another event, col. 4 lines 5 – 20).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuong N. Hoang whose telephone number is (703) 605-4239. The examiner can normally be reached on Monday - Friday 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Follansbee can be reached on (703)305-8498. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-7239 for regular communications and (703)746-7238 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)746-7140.

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